Complete Summary

GUIDELINE TITLE

Adults with systolic heart failure.

BIBLIOGRAPHIC SOURCE(S)

Michigan Quality Improvement Consortium. Adults with systolic heart failure. Southfield (MI): Michigan Quality Improvement Consortium; 2009 Jan. 1 p.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Michigan Quality Improvement Consortium. Management of adults with left-ventricular systolic dysfunction, including heart failure. Southfield (MI): Michigan Quality Improvement Consortium; 2005 Jan. 1 p.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Left-ventricular systolic dysfunction
- Symptomatic heart failure

GUIDELINE CATEGORY

Counseling
Diagnosis
Evaluation

Management
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Geriatrics
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Health Plans
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To achieve significant, measurable improvements in the diagnostic evaluation, pharmacologic treatment and education of patients with systolic heart failure through the development and implementation of common evidence-based clinical practice guidelines
- To design concise guidelines that are focused on key management components of systolic heart failure to improve outcomes

TARGET POPULATION

- Adults with suspicion of left-ventricular systolic dysfunction, including heart failure
- Adults diagnosed with left-ventricular systolic dysfunction, including heart failure

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Diagnosis

1. History and physical examination
2. Depression screening
3. Assessment for coronary artery disease and risk factors
4. Chest x-ray
5. 12-lead electrocardiogram
6. Laboratory tests and other studies including lipid profile, complete blood count (CBC), serum electrolytes (calcium and magnesium), blood urea nitrogen (BUN), serum creatinine, blood glucose, liver function tests, thyroid stimulating hormone (TSH), urinalysis
7. Two-dimensional echocardiography with Doppler

Management/Treatment

1. Angiotensin-converting enzyme (ACE) inhibitors

2. Beta-blockers (carvedilol, sustained release metoprolol, bisoprolol)
3. Diuretics
4. Spironolactone
5. Angiotensin receptor blockers (ARBs)
6. Hydralazine and nitrate in combination
7. Hydralazine and isosorbide dinitrate

Education/Counseling

1. Daily self-monitoring of weight and action plan
2. Symptom recognition
3. Dietary sodium restriction
4. Risk factor modification (regular exercise; smoking cessation; control of blood pressure, diabetes mellitus, lipids, etc.)
5. Avoidance of excessive alcohol intake, illicit drug use, and use of nonsteroidal anti-inflammatory drugs (NSAIDs)
6. Vaccination against influenza and pneumococcal disease

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The Michigan Quality Improvement Consortium (MQIC) project leader conducts a search of current literature in support of the guideline topic. Computer database searches are used to identify published studies, existing protocols and/or national guidelines on the selected topic developed by organizations such as the American Diabetes Association, American Heart Association, American Academy of Pediatrics, etc. If available, clinical practice guidelines from participating MQIC health plans and Michigan health systems are also used to develop a framework for the new guideline.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence for the Most Significant Recommendations

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Using information obtained from literature searches and available health plan guidelines on the designated topic, the Michigan Quality Improvement Consortium (MQIC) project leader prepares a draft guideline to be reviewed by the medical directors' committee at one of their scheduled meetings. Priority is given to recommendations with [A] and [B] levels of evidence (see "Rating Scheme for the Strength of the Evidence" field).

The initial draft guideline is reviewed, evaluated, and revised by the committee resulting in draft two of the guideline. Additionally, the Michigan Academy of Family Physicians participates in guideline development at the onset of the process and throughout the guideline development procedure. The MQIC guideline feedback form and draft two of the guideline are distributed to the medical directors, as well as the MQIC measurement and implementation group members, for review and comments. Feedback from members is collected by the MQIC project leader and prepared for review by the medical directors' committee at their next scheduled meeting. The review, evaluation, and revision process with several iterations of the guideline may be repeated over several meetings before consensus is reached on a final draft guideline.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

When consensus is reached on the final draft guideline, the medical directors approve the guideline for external distribution to practitioners with review and comments requested via the Michigan Quality Improvement Consortium (MQIC) health plans (project leader distributes final draft to medical directors' committee, measurement and implementation groups to solicit feedback).

The MQIC project leader also forwards the approved guideline draft to appropriate state medical specialty societies for their input. After all feedback is received from external reviews, it is presented for discussion at the next scheduled committee meeting. Based on feedback, subsequent guideline review, evaluation, and revision may be required prior to final guideline approval.

The MQIC Medical Directors approved this updated guideline in January 2009.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The level of evidence grades (A-D) are provided for the most significant recommendations and are defined at the end of the "Major Recommendations" field.

Adults with Suspicion of Left-Ventricular Systolic Dysfunction, Including Heart Failure

Evaluation

Initial assessment should include:

- Thorough history and physical examination **[C]**
- Depression screening
- Assessment for coronary artery disease and risk factors
- Chest x-ray **[C]**
- 12 lead electrocardiogram **[C]**
- Lipid profile, complete blood count (CBC), electrolytes, calcium, magnesium, blood urea nitrogen (BUN), creatinine, blood glucose, liver function tests, thyroid stimulating hormone (TSH), urinalysis **[C]**
- Two-dimensional echocardiography with Doppler **[C]**
- Serial monitoring should include: weight, volume status, electrolytes, renal function, and activity tolerance.

Adults Diagnosed with Left Ventricular Systolic Dysfunction, Including Heart Failure

Pharmacological Management

Note from the National Guideline Clearinghouse (NGC): Please refer to the "Contraindications" field in this summary and/or the original guideline document for information on contraindications to these medications.

Drugs recommended for routine use:

- Angiotensin-converting enzyme (ACE) inhibitors in all patients, unless contraindicated **[A]**
- Recommend beta-blockers (carvedilol, sustained-release metoprolol, bisoprolol) in all stable patients, unless contraindicated **[A]**

Drugs recommended for use in select patients:

- Diuretics and sodium restriction for evidence of fluid retention **[A]**
- Spironolactone for patients with moderate or severe symptoms of heart failure, preserved renal function (creatinine <2.0 in women; creatinine <2.5 in men), and normal serum potassium concentration **[A]**
- In patients who cannot tolerate ACE inhibitors due to cough or angioedema, angiotensin receptor blockers (ARBs) are recommended. **[A]**
- In patients who cannot tolerate ACE inhibitors or ARBs due to angioedema or renal insufficiency, hydralazine and nitrate combination is recommended. **[A]**
- African-American patients who remain symptomatic despite therapy with ACE inhibitors, beta-blockers and PRN diuretics, may be candidates for adding the combination of hydralazine and isosorbide dinitrate **[A]**.

Education, Counseling and Risk Factor Modification

Educate patient/family regarding:

- Daily self-monitoring of weight and adherence to recommended patient action plan
- Recognition of symptoms and when to seek medical attention
- Moderate dietary sodium restriction (e.g., 2,000 to 2,500 mg sodium/day)
- Risk factor modification (regular exercise 5 times per week as tolerated **[B]**; smoking cessation; control of blood pressure, diabetes mellitus, lipids)
- Avoid excessive alcohol intake, illicit drug use, and the use of nonsteroidal anti-inflammatory drugs (NSAIDs)
- Vaccination against influenza and pneumococcal disease

Definitions:

Levels of Evidence for the Most Significant Recommendations

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence is provided for the most significant recommendations (See "Major Recommendations" field).

This guideline is based on the American College of Cardiology/American Heart Association (ACC/AHA) 2005 Guideline Update for the Diagnosis and Management of Chronic Heart Failure in the Adult: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (www.acc.org).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Through a collaborative approach to developing and implementing common clinical practice guidelines and performance measures for symptomatic heart failure, Michigan health plans will achieve consistent delivery of evidence-based services and better health outcomes. This approach also will augment the practice environment for physicians by reducing the administrative burdens imposed by compliance with diverse health plan guidelines and associated requirements.

POTENTIAL HARMS

Adverse reactions to medications

CONTRAINDICATIONS

CONTRAINDICATIONS

- **Angiotensin converting enzyme (ACE) inhibitors**: Life-threatening adverse reactions (angioedema or anuric renal failure); pregnancy; hypotensive patients at immediate risk of cardiogenic shock; systolic blood pressure <80 mm Hg; serum creatinine >3 mg/dL; bilateral renal artery stenosis; or serum potassium >5.5 mmol/L
- **Beta-blockers**: Life-threatening adverse reactions (angioedema or anuric renal failure); pregnancy; hypotensive patients at immediate risk of cardiogenic shock; systolic blood pressure <80 mm Hg; serum creatinine >3 mg/dL; bilateral renal artery stenosis; serum potassium >5.5 mmol/L.; patients with current or recent fluid retention history; unstable or poorly controlled reactive airway disease; symptomatic bradycardia or advanced heart block (unless treated with a pacemaker); or recent treatment with an intravenous positive inotropic agent

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guideline lists core management steps. Individual patient considerations and advances in medical science may supersede or modify these recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Approved Michigan Quality Improvement Consortium (MQIC) guidelines are disseminated through email, U.S. mail, and websites.

The MQIC project leader prepares approved guidelines for distribution. Portable Document Format (PDF) versions of the guidelines are used for distribution.

The MQIC project leader distributes approved guidelines to MQIC membership via email.

The MQIC project leader submits request to website vendor to post approved guidelines to MQIC website (www.mqic.org/).

The MQIC project leader completes a statewide mailing of the comprehensive set of approved guidelines and educational tools annually. The guidelines and tools are distributed in February of each year to physicians in the following medical specialties:

- Family practice
- General practice
- Internal medicine
- Other specialists for which the guideline is applicable (e.g., endocrinologists, allergists, pediatricians, cardiologists, etc.)

The statewide mailing list is derived from the Blue Cross Blue Shield of Michigan (BCBSM) provider database. Approximately 95% of the state's M.D.s and 96% of the state's D.O.s are included in the database.

The MQIC project leader submits request to the National Guidelines Clearinghouse (NGC) to post approved guidelines to NGC website (www.guideline.gov).

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

This guideline is based on the ACC/AHA 2005 Guideline Update for the Diagnosis and Management of Chronic Heart Failure in the Adult: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (www.acc.org).

DATE RELEASED

2002 Dec (revised 2009 Jan)

GUIDELINE DEVELOPER(S)

Michigan Quality Improvement Consortium - Professional Association

SOURCE(S) OF FUNDING

Michigan Quality Improvement Consortium

GUIDELINE COMMITTEE

Michigan Quality Improvement Consortium Medical Director's Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Physician representatives from participating Michigan Quality Improvement Consortium health plans, Michigan State Medical Society, Michigan Osteopathic Association, Michigan Association of Health Plans, Michigan Department of Community Health and Michigan Peer Review Organization

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Standard disclosure is requested from all individuals participating in the Michigan Quality Improvement Consortium (MQIC) guideline development process, including those parties who are solicited for guideline feedback (e.g., health plans, medical specialty societies). Additionally, members of the MQIC Medical Directors' Committee are asked to disclose all commercial relationships as well.

GUIDELINE STATUS

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GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Michigan Quality Improvement Consortium Web site.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 14, 2004. The information was verified by the guideline developer on July 27, 2004. This NGC summary was updated by ECRI on February 24, 2005. The information was verified by the guideline developer on February 25, 2005. This NGC summary was updated by ECRI Institute on June 8, 2009. The updated information was verified by the guideline developer on June 30, 2009.

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Readers with questions regarding guideline content are directed to contact the guideline developer.

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